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A galactic halo and gamma ray pulses could help scientists locate dark matter discovery

## [The Whereabouts of Dark Matter Revealed](#)

*A giant simulation indicates where dark matter could be found*

According to a [Reuters](#) article, a recent vast-scale simulation of the creation and evolution of a Milky Way-type of galaxy has indicated some potential places in space where scientists should search for dark matter. Although the existence of the matter that forms a huge part of the universe has been known for a long time, and theoretically proved, all efforts to actually discover it turned out to be useless. However, in light of their research, experts may yet stand a chance.

As Carlos Frenk, a cosmologist from Durham University in UK shares, "Discovering what dark matter is, is one of the most fundamental questions scientists can ask. Uncovering the identity of the main component of the universe. That is what this is about." Although it was not seen directly, its influence on the light coming from distant galaxies (the light gets bended by the gravity tugs of dark matter) has given the researchers a rudimentary insight into how it behaves. This little knowledge they have acquired so far has made scientists persevere in their investigation on the location, structure and effects of the matter.

The team of specialists developed a computer simulation of a giant spiral galaxy, with a mass a trillion times greater than that of the Sun, surrounded by an even larger dark-matter halo. Normally, this halo is created by repeated powerful impacts between conglomerates of dark matter, originating after the Big Bang. This type of impacts that take place in the most dense regions of the halo yield light, known under the name of gamma ray, which appears to brighten up those particular portions of the halo in "a smoothly varying and characteristic pattern."

This is what observers should be looking for if they want to find dark matter, the authors of the study believe. According to Frenk, such a zone is located close to the Sun, near the galactic center. "What we have shown through a gigantic simulation is where the gamma rays would come from," explained the cosmologist. "We have given a blueprint for people on where to look and how the signal should appear."